



MATERIAL SAFETY DATA SHEET

Form WI04-11A Rev. 1

Part Number(s):
100-1XX-XX, 100-2XX-XX,
100-3XX-XX, 100-4XX-XX

Product Name: In-Ovation-C
(For the body of the bracket)

Release Date: 9-20-2006

1. Product and Company Identification

Trade Name & Synonyms In-Ovation - C	MSDS Code Number Refer to part number
Chemical Name Translucent Aluminum Oxide (sintered material). Substance or preparation: Substance (sintered material).	Manufacture / Distributor GAC International Inc.
C.A.S. Number 1344-28-1	Address 355 Knickerbocker Ave. Bohemia, NY USA 11716
Grades or Minor Variant Identities NA	Information Telephone Number 1-631-419-1700
Product Use (for Canada) Orthodontic bracket	Emergency Telephone Number 1-631-419-1700

2. Composition of Ingredients

Hazardous Components	C.A.S. Number	Exposure Limits	%
Aluminum Oxide	1344-28-1	NA	≥ 99.9
(As impurities) Silicon Dioxide	NA	NA	< 0.1
Chemical formula: Al ₂ O ₃ Japanese Official Gazette Serial No: (The Law concerning the examination and regulation of manufacture etc. of chemical substances/occupational health and safety law) (1) -23: Aluminum Oxide. Ingredients contributing to the hazards: Aluminum Oxide (Insoluble under normal conditions).	NA	NA	NA

3. Hazard Identification

Emergency Overview					
It is presumed that the hazardousness is very low under normal condition. Physical and chemical hazards: The material is incombustible. Name of class: Not applicable in the standard of classification. (The classification standard is the Japanese method)					
Routes of Exposure	Signs and Symptoms	Single, Repeated, or Lifetime Exposure	Severity (Mild, Moderate, Severe)	Acute and Chronic Health Effect(s)	Target Organ(s)
Eye	NA	NA	NA	NA	NA
Skin	NA	NA	NA	NA	NA
Inhalation	NA	NA	NA	NA	NA
Ingestion	NA	NA	NA	NA	NA
Other	NA	NA	NA	NA	NA
Medical Conditions Aggravated by Exposure - NA					
Carcinogenicity (IARC, NTP) - NA					
Potential Environmental Effects- None known.					

4. First Aid Measures

Routes of Exposure	First Aid Instructions	Immediate Medical Attention	Delayed Effects
Eye (Fragments are included)	Not rub the eye, immediately rinse the eye with running water for at least 15 minutes. While washing the eye, keep the eye open so that the water covers the entire eye surface.	Immediately seek medical attention.	NA
Skin	Wash away with water.	NA	NA
Inhalation	NA	NA	NA
Ingestion	Wash the inside of mouth with water.	Seek medical attention.	NA
Other	NA	NA	NA
Note to Physicians (Treatment, Testing, and Monitoring) NA			



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5. Fire and Explosion Data

Flashpoint & Method: °C / °F Incombustible	Flammable (Explosive) Limits in Air LEL: NA UEL: NA	Autoignition Temperature NA	Other Specific hazards: Declare off- limits for those unconcerned in the surrounding of fire scene.
Flame Propagation or Burning NA	Properties Contributing to Fire Intensity NA	Flammability Classification Health- , Flammability- , Reactivity- NA	
Extinguishing Media As this product is incombustible, use extinguishing media apt for the surrounding fire.		Extinguishing Media to Avoid NA	
Protection and Procedures for Firefighters Fire fighting-should be made from the windward as possible. Take the measures to prevent the product and fire extinguishing water from discharging into the sewage, river and sea. In case of fire in the surroundings, move the product to a safe place.			
Unusual Fire and Explosion Hazards N/A			

6. Accidental Release Measures

Containment Techniques Environmental precautions: Implement measure to prevent the scattered products from being re-scattered. Take measures to prevent the product from discharging into sewage, rivers and sea.
Spill/Leak Clean-Up Procedures and Equipment Personal precautions: For cleaning up, on account of possibility of a slight injury by fragments, wear protective gloves, a dust respirator and safety glasses (general type). Especially, in the globular and granulate are spilled over, watch one's step. The scattered products should be swept up and packed into a hermetic container.
Evacuation Procedures NA
Special Instructions Prevention of secondary hazards: If there is possible effects on the population and transportation in the surroundings, notify the authorities concerned and the emergency contact of TOSOH CERAMICS CO , LTD.
Reporting Requirements NA

7. Handling and Storage

Handling Practices and Warnings Technical measures: In case of dust occurrence, ventilate with ventilators. Precautions: Do not handle the container in a rough manner leading to breakage. Safe handling advice: In case of breakage of the product, for handling, on account of a possibility of a slight injury by fragments, wear protective gloves, a dust respirator and safety glasses (general type). Especially, if the globular and granulate products are spilled over, quickly put the products into a container, as they are slippery on the floor.
Storage Practices and Warnings Store the products in a container. Do not put the container directly under the sun. Packaging materials: Use the container capable of withstanding load or impact from outside, such as cardboard boxes or those made of plastics, and son on.



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8. Exposure Control/Personal Protection

Ventilation In the work place where dust is generated, install ventilation facilities.		Other Engineering Controls Install washing facilities for the eyes and body cleaning. Standard control concentration ₁ : N/A in the working environment measurement standards. (Dust is not generated in normal handling). (Ref). In case of dust occurrence in the handling place soil, stone, mineral, metal or carbon dust. (Not includes free silicic acid) 2.9mg/m ³ .
Routes of Entry:	Personal Protective Equipment (PPE) for Normal Use:	PPE for Emergencies:
Eye/Face	Safety glasses (general type), safety goggles	NA
Skin	Protective gloves (made of rubber, vinyl, polyethylene and so on)	NA
Inhalation	Dust respirator (in case of dust occurrence)	NA
General Hygiene Considerations and Work Practices NA		
Protective Measures During Repair and Maintenance of Contaminated Equipment NA		
Other Protective Measures and Equipment Threshold limit valued: Japan society for occupational health ² : Not applicable in the Japan society for occupational health advices. (Ref) In case of dust occurrence in the handling place Japan society for occupational health advices. Limits of Type 1 dust are recommended: Inhalation dust 0.5 mg/m ³ . Total dust 2mg/m ³ . ACGIH ³ : Not applicable in the ACGIH advices (Ref.) ACGIH ADVICES (PNOS): Aluminum oxide powder (As Al) 10mg/m ³ (Time weighted average)		

9. Physical and Chemical Characteristics

Appearance Colorless.		Odor Odorless
Normal Physical State: <input type="checkbox"/> Liquid <input type="checkbox"/> Gas <input checked="" type="checkbox"/> Solid <input type="checkbox"/> ____ (Other)		Boiling Point NA °C / °F Melting Point NA °C / °F Freezing Point NA °C / °F
Specific Gravity or Density (H₂O=1) 3.95-3.99.	Solubility in Water Insoluble in water, strong acid, strong alkali and organic solvent at atmospheric pressure.	pH N/A
Vapor Pressure (mm Hg @ 20°C) NA	Vapor Density (AIR= 1) NA	Evaporation Rate (Butyl Acetate = 1) NA
Other Explosion properties: Not applicable. Flash point: Incombustible.		

10. Stability and Reactivity Data

Incompatibility (Materials to Avoid) NA		
Hazardous Products Produced During Decomposition None known.		
Hazardous Polymerization? <input type="checkbox"/> May Occur <input checked="" type="checkbox"/> May Not Occur		Conditions to Avoid °C / °F NA
Stability? <input checked="" type="checkbox"/> Stable <input type="checkbox"/> Unstable		Conditions to Avoid °C / °F NA

11. Toxicological Information

Toxicity Data, Epidemiology Studies, Carcinogenicity, Neurological Effects, Genetic or Reproductive Effects, or Structure Activity Data
Acute Toxicity: None known. Local effects: None known. (Irritativness): None known.



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12. Ecological Information

Toxicity, Environmental Fate, Physical/Chemical Data, or Other Data Supporting Environmental Hazard Statements

No environmental effect is available on the product not on any of its ingredients.

13. Disposal Considerations

Regulations - NA

Properties (Physical/Chemical) Affecting Disposal

Waste from residues:

- The disposal work should be made paying attention to the precautions of section handling and storage.
- When the disposal is consigned to an outside agent. Consign it to a professional disposal trader of wastes which is authorized by the municipal governor.
- The disposal must be conducted according to the method prescribed by the municipal government.

14. Transport Information

Regulated for shipping?

Yes No

Proper Shipping Name

In-Ovation - C

Packing Group

NA

Do changes in quantity, packaging, or shipment method change product classification?

Yes No

Hazard Class

N/A to the hazardous substance based on the definition of UN advices.

Identification Number

UN number not listed

Other Pay attention to collapsing and falling of cargoes. The transport should be made in conformity with the precautions of section handling and storage, Guideline number ⁵): Emergency measure guideline N/A

15. Regulatory Information

Federal Regulations

Waste Management and Public cleansing law (Industrial wastes) Water pollution control law (Clause related to hydrogen ion concentration, etc) Industrial health and safety law (2 of article 57,9 of attached table related to 2 of article 18 of enforcement order) For alumina dust: Pneumoconiosis law (Article 2, attached table related to article 2 of enforcement ordinance).

International Regulations

NA

Other

NA

16. Other Information

References 1) Official Gazette, Notification No.26 March 27, 1995, the Ministry of health, labor and welfare (extra edition No.55) 2) Journal of Occupational Health, Vol.45 (2005) 3) ACGIH, TLVs and BEIs are based on the documentation of the threshold limit values for chemical substances and physical agents & biological exposure indices(2005) 4) Our experimental data 5) Guidelines for emergency measures, Japan chemical industry association (Revised 2001), (Original article: U.S. Guidelines for emergency measures, edition 2000)

Supplier Number: 4/100

Supplier Release: March 27, 2006

N/A = not applicable. NA = not available, N/E = not established. N/D = not determined.